

## ABSTRACT

Methods and apparatus for dynamically determining whether portions of code should be interpreted or compiled in order to optimize a software application during run-time are disclosed. According to one aspect of the present invention, computer-implemented method for run-time processing of a computer program which includes byte-codes arranged as a plurality of methods includes invoking a first method selected from the plurality of methods. Invoking the first selected method involves interpreting the first selected method. An invocation tracker which is arranged to track the number of invocations of the first selected method is updated, and a determination is made regarding when the invocation tracker indicates that the number of invocations of the first selected method exceeds a threshold value. The first selected method is compiled when it is determined that the invocation tracker indicates that the number of invocations of the first selected method exceeds a threshold value. This threshold value is periodically adjusted to keep the compilation and the interpretation overheads within acceptable ranges.